

Application No. 10/491,408 691894, 408
Renumberation of Amendment 11 dated February 8, 2006
Reply to Office Action mailed November 8, 2005

LISTING OF THE CLAIMS

The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A method of creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN, the method comprising:

parameterizing a set of attributes for a desired data path between the process and the storage device of the SAN; and

constructing the data path that provides said set of attributes.

2. (Original) The method of claim 1 wherein said set of attributes includes a pre-defined template.

3. (Previously Presented) The method of claim 2 wherein said set of attributes includes a data path owner, application, and the server on which the application is executing.

4. (Original) The method of claim 2 wherein said pre-defined template specifies a set of performance, availability, and cost metrics for the desired data path.

5. (Original) The method of claim 4 wherein said set of performance and availability metrics includes at least one of a number of threads, a security level, and a default volume size and characteristics, default path characteristics.

6. (Original) The method of claim 1 wherein said parameterizing step includes a step of entering a user-defined attribute for inclusion in said set of attributes.

7. (Original) The method of claim 6 wherein said entering step includes entry of said

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user-defined attribute by use of a graphical user interface coupled to the SAN.

8. (Previously Presented) The method of claim 1 wherein said constructing step further comprises:
searching the SAN for a set of candidate storage devices;
constructing a candidate data path from the server to each candidate storage device of said set of candidate storage devices;
evaluating each said candidate data path against a selection metric to rank said candidate data paths from a best candidate data path to a least best candidate data path according to said selection metric; and
selecting said best candidate data path as the data path to be constructed by said constructing step.
9. (Previously Presented) The method of claim 1 wherein said constructing step further comprises:
searching the SAN for a set of candidate storage devices;
constructing a candidate data path from the server to each candidate storage device of said set of candidate storage devices;
evaluating each said candidate data path against a selection metric to rank said candidate data paths from a best candidate data path to a least best candidate data path according to said selection metric;
presenting said ranked candidate data paths to a user for selection; and
selecting a user-selected candidate data path as the data path to be constructed by said constructing step.
10. (Original) The method of claim 9 wherein said presenting step recommends said best candidate data path for selection by said user.
11. (Original) The method of claim 10 wherein said best candidate data path is presented as a default selection at said selecting step.

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12. (Previously Presented) The method of claim 9 wherein said selection metric includes storage device uptime information.
13. (Original) The method of claim 9 wherein said selection metric includes performance information.
14. (Original) The method of claim 9 wherein said selection metric includes cost calculation.
15. (Original) The method of claim 9 wherein said selection metric includes best SAN practices information.
16. (Original) The method of claim 9 wherein said selection metric includes learned state and usage information of the SAN.
17. (Original) The method of claim 9 wherein said searching step prequalifies a subset of candidate data paths by finding those candidates that satisfy a pre-created policy prior to application of said evaluating step.
18. (Original) The method of claim 1 wherein said constructed data path includes all physical, logical and security component identification and configuration information sufficient to operably link the process to an identified data volume of the SAN.

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19. (Previously Presented) A method of configuring a SAN, the SAN providing connectivity between a server and a storage device in the SAN, the method comprising:

discovering, by use of an external data path engine coupled to the SAN, processes that are operable on a server coupled to the SAN;

discovering, by use of said external data path engine coupled to the SAN, storage devices that are included in the SAN;

responding, by use of said external data path engine coupled to the SAN, to a data path construction request from a user by providing said user with an interface to accept a set of attributes for a desired data path for one of said discovered processes; and

constructing, by use of the external data path engine coupled to the SAN, the data path that provides said set of attributes.

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20. (Previously Presented) Apparatus for creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN, the method comprising:
- means for parameterizing a set of attributes for a desired data path between the process and a storage device of the SAN; and
- means, coupled to said parameterizing means, for constructing the data path that provides said set of attributes.
21. (Previously Presented) The method of claim 1, constructing the data path comprising automatically constructing a datapath having one or more channels or threads.
22. (Previously Presented) The method of claim 21, the one or more channels or threads being one or more fibre channel connections.
23. (Previously Presented) The method of claim 19, constructing the data path comprising automatically constructing a datapath having one or more channels or threads.
24. (Previously Presented) The method of claim 23, the one or more channels or threads being one or more fibre channel connections.
25. (Previously Presented) The apparatus of claim 20, the data path being constructed automatically and having one or more channels or threads.
26. (Previously Presented) The apparatus of claim 25, the one or more channels or threads being one or more fibre channel connections.
27. (Previously Presented) The method of claim 1, constructing the data path that provides said set of attributes being performed without user or administrator intervention.

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28. (Previously Presented) The method of claim 19, constructing the data path that provides said set of attributes being performed without user or administrator intervention.

29. (Previously Presented) The apparatus of claim 20, the data path being constructed without user or administrator intervention.

30. (Previously Presented) The method of claim 19, discovering storage devices that are included in the SAN being performed automatically.

31. (Previously Presented) The method of claim 1, further comprising: connecting the SAN to a Wide Area Network (WAN) through a general purpose computer; and communicating with another processing system through the WAN using the general purpose computer.

32. (Previously Presented) The method of claim 31, communicating with another processing system comprising communicating with a server by using a TCP/IP protocol.

33. (Previously Presented) The method of claim 19, the external data path engine being operated as part of a general purpose computer.

34. (Previously Presented) The method of claim 33, the external data path engine being coupled to a switching network of the SAN.

35. (Previously Presented) The method of claim 33, the general purpose computer being connected to a Wide Area Network (WAN).

36. (Previously Presented) The method of claim 35, the general purpose computer being connectable to a plurality of other devices, networks or locations through the WAN.

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37. (Previously Presented) The method of claim 35, further comprising communicating with another processing system through the WAN using the general purpose computer.

38. (Previously Presented) The method of claim 37, communicating with another processing system comprising communicating with a server using a TCP/IP protocol.

39. (Previously Presented) The apparatus of claim 20, further comprising:
a general purpose computer, the means for constructing the data path being operated as part of the general purpose computer;

a Wide Area Network (WAN), the general purpose computer being connected to the WAN, the general purpose computer communicating with another processing system through the WAN.

40. (Previously Presented) The apparatus of claim 39, the general purpose computer communicating with a server using a TCP/IP protocol.

41. (Previously Presented) The method of claim 1, constructing the data path comprising automatically constructing a data path that provides said set of attributes.

42. (Previously Presented) The method of claim 19, constructing the data path comprising automatically constructing a data path that provides said set of attributes.

43. (Previously Presented) The apparatus of claim 20, the means for constructing the data path automatically constructing the data path.

44. (Previously Presented) The method of claim 1, constructing the data path comprising constructing a data path across multiple networks.

45. (Previously Presented) The method of claim 19, constructing the data path comprising constructing a data path across multiple networks.

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46. (Previously Presented) The apparatus of claim 20, the means for constructing the data path comprising the data path across multiple networks.

47. (Previously Presented) The method of claim 1, constructing the data path comprising constructing a data path across multiple locations.

48. (Previously Presented) The method of claim 19, constructing the data path comprising constructing a data path across multiple locations.

49. (Previously Presented) The apparatus of claim 20, the means for constructing the data path comprising the data path across multiple locations.

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